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THE PLANT DISEASE REPORTER

ISSUED BY

THE OFFICE OF MYCOLOGY AND DISEASE SURVEY

Volume XIII Number 1

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BUREAU OF
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NOTICE

The Plant Disease Reporter will be issued every two weeks from now on through the remainder of the season. Plant pathologists are invited to contribute timely notes on the occurrence and prevalence of plant diseases and on such other subjects as naturally fall within the scope of the Plant Disease Survey as set forth below. Since the Reporter will come out on the first and fifteenth of each month notes intended for immediate publication should be received in Washington three or four days in advance of these dates.

It is intended to make this volume of the Reporter the best ever issued and with the continued assistance of collaborators and others this objective should be easily attainable. R. J. H.

OBJECTS OF THE PLANT DISEASE SURVEY

The Plant Disease Survey records the geographic distribution, prevalence, and rate of spread of diseases of plants in the United States, and estimates losses occasioned by them. It watches out for new and possibly dangerous diseases, in order that restrictive measures may be devised, and studies epidemics or unusual outbreaks with a view to obtaining more information concerning the factors governing their development, spread, and control. It gathers data on time of appearance, the resistance and susceptibility of varieties to diseases,

the practical effectiveness of various control methods, and other points of value in disease control work.

The Survey is a cooperative undertaking on the part of state and federal plant pathologists. By means of it they are given a more comprehensive grasp of disease conditions, and are enabled to attack their problems more effectively.

R. J. H.

A NEW DISEASE OF STORED ONIONS FOUND IN COLORADO

By F. L. Wellman

What appears to be a new disease of stored onions was observed shortly before Christmas, 1928, in Colorado irrigated onion growing sections. While onions have been grown in commercial quantities for only three or four years in that section, they have been produced experimentally there for at least twice that long, and the County Agents, onion buyers and growers state that this disease has existed there from the first. The onion growing district is well distributed up and down the Arkansas Valley region with its center in Rocky Ford, and over the western slope area with centers there in the towns of Montrose and Delta.

Cultural studies from diseased bulbs have been made by the writer and limited inoculations carried out on healthy bulbs obtained from the market in Madison, Wisconsin. A Fusarium was isolated consistently, which is pathogenic on onion bulbs and the disease is being considered of Fusarium origin. An affected bulb may appear sound in storage but with a dark discoloration of the neck. Upon squeezing such an onion a watery dark brown drop appears. This may be seen in storage when the weight of surrounding onions produces sufficient pressure. Some growers call the trouble "bloody nose" which describes this symptom admirably. The organism may only attack a few internal scales. They may be located in any part of the bulb. They appear darkened and tender, though not watery like bacterially infected tissue. The rest of the onion remains firm and crisp.

The disease has apparently caused losses every year in stored bulbs in Colorado of either the Mountain Danners, Yellow or White Valencia, or Giant Gibraltar varieties of onions. One shipper reported a loss of 90 per cent in a crop of Giant Gibraltar onions one year. Losses this season will probably range from a trace to 40 per cent, though some lots of onions show absolute freedom from the disease.

BLACK ROT OF CABBAGE IN THE LOWER RIO GRANDE VALLEY, TEXAS

By W. J. Bach and J. J. Taubenhaus

Cabbage is one of the most important winter truck crops grown in the Lower Rio Grande Valley (Hidalgo, Cameron and Willacy Counties), the Robstown district, the Winter Garden district (Frio, La Salle, Zavalla, Dimmit, and Maverick Counties), and Webb County. Black rot, Bacterium campestre (Pam.) EFS., usually is found every year on cabbage in South Texas, causing losses varying from 5 to 10 per cent. This season (1928-29) the disease appeared in epidemic form, especially in the Lower Rio Grande Valley, and it is somewhat difficult to account for this sudden outbreak.

The disease appeared first in the seed beds and has increased in severity in the fields up to harvesting time. Estimates place the total damage to the entire cabbage crop at about 20 per cent for the Lower Rio Grande Valley and from 15 to 20 per cent for South Texas in general.

Early symptoms of the disease were somewhat confusing. On the young plants in the seed bed the disease appeared first as small dark discolored areas on the stems, which later became larger and more prominent and was often associated with a cavity or cracking of the stem. A distinct blackened area usually appeared at the base of the small leaves. Young plants often showed a dwarfing or one sided growth and had a tendency to appear wilted.

Cultures were made from several different lots of plants of various ages and from various sources. They showed that the trouble was due to black rot, Bacterium campestre (Pam.) EFS., although a small per cent of Rhizoctonia and Fusarium also appeared. The Rhizoctonia was obtained from plants which showed wire stem in the seed bed. The Fusarium would indicate the presence of yellows although the organism was not studied in comparison with Fusarium conglutinans.

Glory of Enkhuizen, one of the leading varieties grown in the Valley, appears to be affected much worse than any other variety grown here. Copenhagen ranks next in severity of infection. The disease has also been noted on the following varieties, ranking in severity in the order named; Flat Dutch, Wakefield, All Head Early, Mammouth Red Rock, and Savoy. The loss from these latter varieties has been small in comparison with that suffered in fields of the Glory of Enkhuizen and Copenhagen varieties. Black rot also occurred on broccoli (Glory of Calabria) and cauliflower (Riverhead Snowball). The greatest loss of broccoli and cauliflower probably occurred in the seed beds.

The cabbage seed used in the Lower Rio Grande Valley is secured mainly from two sources, Long Island and the Pacific Coast. As far as the writers are aware, no black rot was reported from New York, which may or may not have occurred in the cabbage seed producing section.

Black rot showed up in practically every planting in the Lower Rio Grande Valley regardless of the source of the seed and it has been equally severe on plantings on old and new land. This was true also in the other cabbage growing sections of South Texas, hence it is difficult to trace the general occurrence this season to the original source of infection. The severe infestation of aphids may have contributed to the general distribution of infection which has occurred, as these insects have been the worst this season that the growers have ever experienced. There is also some possibility that infection may have been carried over on cruciferous weeds although it has not been observed by the writers on any wild hosts.

Practically all the seed used in the Lower Rio Grande Valley is treated by the dealers with an organic mercury dust and only a very few growers have used the bichloride of mercury solution treatment. However, in one particular case a grower who used the solution treatment grew enough plants to set out 100 acres of Flat Dutch cabbage and no black rot has appeared on any of the plants to date. On the other hand, this grower secured enough plants to set about one and one-half acres from another grower whose seed had not been treated with the bichloride of mercury solution and approximately 75 per cent of these plants were lost due to black rot.

Faulty irrigation and handling of plants has no doubt contributed to the excessive losses in many cases, as it has been observed to indirectly increase the seriousness of the disease.

DOWNY MILDEW AFFECTS SPINACH CROP IN NEW MEXICO

Collaborator R. F. Crawford has just sent in a report that downy mildew of spinach, Peronospora effusa, has been extremely severe in the Mesilla Valley of New Mexico this year. Some fields were entirely destroyed. Cooler weather than normal was thought to have favored the disease.

TOBACCO WILDFIRE IN MARYLAND

> "Several tobacco seed beds were inspected in Charles and St. Mary's Counties on April 24, 25, and 26. The young plants had leaves about half of an inch in diameter. Wildfire was found on these young plants on three seed beds in St. Mary's County. On two of these beds covers were used which had been used on beds which were infected with wildfire last year. These covers had not been sterilized and it is suspected that the disease was brought into the beds on them. No wildfire was found in any seed beds when old covers were used which had been sterilized." (Jehle, May 1)

NOTES ON APPLE SCAB

Several collaborators have sent in notes concerning development of the apple scab fungus and its host. Other information has been gleaned from news letters that are issued in some of the states. This office is on the mailing list for the following. If there are others of a similar nature we would like to receive them.

1. New York State College of Agriculture, Departments of Plant Pathology and Entomology Weekly News Letter Concerning Insect Pests and Plant Diseases.

2. Fun-Gus-Side News Letter (Pennsylvania).

3. Spray Service Information (West Virginia).

Massachusetts: Ascospores of Venturia inaequalis, apparently mature but still in the perithecia, were found here by me April 8. Dr. Guba also found them on April 6 in leaves collected in Stowe, Mass. This is earlier than usual for Massachusetts, and we have advised our county agents that McIntosh apples should receive the prepink application earlier than fruit growers here usually apply it. (Doran, April 10)

New York: The great majority of the perithecia in McIntosh leaves at Ithaca have matured their spores. Apparently only small numbers of spores were discharged under the recent heavy snow at Ithaca. Leaves from under the snow were compared with leaves in a gully where the snow had disappeared. A considerable retardation in the shooting of spores by the snow covering was noted. In McIntosh leaves gathered April 20 about 65 per cent of the perithecia contained large numbers of mature spores.

Samples sent in from points in western New York have varied considerably in the number of spores discharged but in all samples there were large numbers of mature spores present. In general the samples from near Lake Ontario show a larger percentage of spores discharged than appears to be the case in Ithaca probably due to the snow cover there. (W. D. Mills, New York Weekly News Letter, April 22)

Pennsylvania: Scab spores matured in all counties south of Lehigh and Northampton during the first part of last week and in the last named counties during the week end. In Schuylkill and Carbon Counties the spores will mature the first part of this week. Zundel and Denniston report mature spores in Luzerne, Allegheny, Fayette and Mercer Counties. An examination of the test traps in Delaware County showed that there was a moderate shooting of spores during the Thursday and Friday rains (April 4 and 5).

The record breaking hot weather of the week end has caused rapid bud development and the formation of new leaves and flower stems that must have spray protection before the next prolonged rain. It now looks as if there will be a chance to have the bud clusters separate before the next spray will be applied. Smokehouse buds were separating in Delaware on the 6th and

Stayman buds were starting to separate in Chester County on the 7th. (Kirby, April 7)

Maryland: In Wicomico County differentiation of asci was noted March 20 (delayed dormant), the first mature ascospores April 11 (blossom), and first ascospore discharge April 11. The first lesions on apple leaves noted this year were in an orchard in Charles County, April 24. (Jehle, May 1)

Illinois: Fruit bloomed about three weeks ahead of time through southern and central Illinois. So far no killing frosts have occurred and the promise is a good crop of all kinds of fruit. All growers are pessimistic, however, since they all say that fruit never gets through when it blooms so early.

Scab perithecia showed mature ascospores at Urbana on March 19. These were abundant and "shot" promptly when brought into the laboratory. Apple buds were still dormant at this time.

Scab lesions were found on apple in Pulaski County on April 8. I think this is the earliest recorded date of scab appearance in this state. We have had very heavy rains and ideal scab weather since April 7. The rapidity of growth from the opening of the apple buds to bloom was such as to catch most growers unprepared, so that not 1 per cent of the orchardists put on a pre-bloom spray. Now with apples in full bloom or beyond and with ideal scab weather, the prospects of control are slight. (Anderson, April 12)

Wisconsin: Ascospores were naturally discharged at Madison on the early date of March 28. Examination of leaves under the apple trees shows that there is already present a large quantity of spores simply awaiting rains for their discharge. It would seem from this that we are due for an abundant scab infection early this year if weather conditions are at all favorable. (Vaughan, April 1)

BACILLUS AMYLOVORUS

According to W. D. Valleau of Kentucky blight was spreading rapidly in apples on May 6. Cases of blossom blight were observed at the Arlington Farm, Virginia, May 4.

CEDAR RUST

From Ulster County, New York, W. S. Salisbury reports (April 22) all three forms of rust common on red cedar - the canker-like lesions of the quince rust (Gymnosporangium germinale (Schw.) Kern, and the cedar apples of the hawthorn rust (G. globosum Farl.) and of the apple rust (G. juniperi-virginianae Schw.). The telial horns of the latter two rusts at that time were one-fourth of an inch long.

In this connection attention is called to the recent memoir from Cornell (Thomas, H. E., and W. D. Mills. Three rust diseases of the apple. New York Agr. Sta. (Cornell) Memoir 123: 1-21. Mar. 1929).

Rust lesions on apple leaves were first noted in Maryland this year by R. A. Jehle on April 24.

PYTHIUM INFECTION OF LARKSPUR

Pythium aphanidermatum was collected on annual larkspurs (Delphinium ajacis) in a greenhouse near Norfolk, Virginia, on April 11 by F. P. McWhorter and Freeman Weiss. In a bed of approximately 1,000 plants, about 50 were in various stages of decline, some well grown specimens wilting to the point of complete collapse; other rather dwarfish plants showing advanced stages of root and stem rot. Not only were the small roots rotted off, but the main root and the stem for 2 to 3 inches above the soil surface were more or less involved in decay. The affected parts were conspicuously blackened. In some of the stems the pith cavity was occupied by fungous mycelium. When specimens were placed in a moist chamber the mycelium rapidly overgrew the entire stem in several instances. A Pythium was readily isolated from small and large roots, and from several portions of stems. It was identified by Charles Drechsler as P. aphanidermatum.

This greenhouse was visited again by McWhorter early in May when it was found that the loss had increased to 15 per cent. At this time it was noticed that the injury seemed to be much greater to white than to colored varieties. The latter were not immune but were certainly far less injured than the white sorts. (F. Weiss, May 11)

FOOT ROT DUE TO PHYTOPHTHORA CACTORUM IN ADDITIONAL SPECIES OF LILIUM

A culture of Phytophthora isolated by E. B. Mains from diseased plants of Lilium tenuifolium Fisch. near Lafayette, Indiana, during the season of 1928 was identified by the writer as Phytophthora cactorum (Cohn & Leb.) Schroet., a fungus previously found as the cause of foot rot of Lilium candidum L. and L. pyrenaicum Gouan near the District of Columbia (Phytopath. 16: 51-53. Jan. 1926). It may be worthy of record also that the same parasite was isolated from diseased specimens of Lilium washingtonianum Kellog, L. speciosum Thunb. and L. regale Wilson, collected in May, 1927, again from the experimental plot maintained by H. E. Allanson at Takoma Park, Maryland. In type of injury the latter three species at least, presented no departure from the description given of foot rot in the two congeneric hosts. (Charles Drechsler, Jan. 15)

OBSERVATION ON NARCISSUS MOSAIC IN VIRGINIA

F. P. McWhorter makes the following statement as a result of observations on certain bulb farms in Virginia:

> "Varietal distribution of mosaics, March 11 and 12. At this time only the early varieties such as Cervantes, Goldenspur and Henry Irving were in flower. The following were conspicuously diseased:

Variety	Location	Per cent Mosaic
Cervantes	Great Bridge	40
"	Elmerton	50
Bicolor Dick	Great Bridge	20
Orange Phoenix	"	50
Queen of England	"	30
Admiration	"	10
Lemon	"	2

> "It is planned to make readings such as these at two-week intervals."

TYLENCHUS DIPSACI ON BULBS

Most of the specimens listed were received through members of the Plant Quarantine and Control Administration and were examined by Doctors Cobb and Steiner of the Bureau of Plant Industry.

ONION: from Holland, received from A. J. Bruman through D. P. Limber, Jan. 7, 1929. Intercepted at New York City, Dec. 28, 1928, by W. S. Fields. Det. G. Steiner.

NARCISSUS; Springfield, Ohio, E. W. Mendenhall, April, 1929. Det. N. A. Cobb.

North, Virginia, F. Weiss, April, 1929. Det. G. Steiner. Varieties King Alfred, Victoria, Emperor.

Sanford, Florida, Chapman & Davidson, Jan. 14. Sent in by E. R. Sasscer. Det. N. A. Cobb. Stock from France, 1928 importation. Variety Soleil d'Or.

Glen St. Mary, Florida, Davidson & Chapman, Jan. 26. Received from E. R. Sasscer, Feb. 6. Det. N. A. Cobb. Variety Soleil d'Or.

Monticello, Florida, Chapman & Davidson, Jan. 26, sent in by E. R. Sasscer. Det. N. A. Cobb. Cephalobus elongatus also found. Variety Paper White.

Jacksonville, Florida, Chapman & Davidson, Jan. 28. Received from E. R. Sasscer. Det. N. A. Cobb. Variety Roman Constantinople.

On cut flowers of Poeticus ornatus from Canada. From S. B. Fracker, Feb. 28, intercepted at Detroit, Michigan, Feb. 19, by Messrs. Wood and Gower. Det. N. A. Cobb.

RHIZOCTONIA SOLANI ON TULIP

Diseased tulip stems and leaves and a culture of a fungus isolated from them were received from E. F. Guba of Massachusetts in February. The specimens and culture were examined by Dr. Freeman Weiss who determined the fungus as Rhizoctonia solani. He reported:

> "The leaf lesions appear like those of Botrytis tulipae, but nothing but Rhizoctonia was obtained from them ..... Previous to this year I have not encountered R. solani parasitic on tulips but shortly before receiving these specimens, I received tulips injured in the same way from a grower in Pennsylvania and those specimens also yielded R. solani."

RUST ON PLUMIERA ACUTIFOLIA

A specimen of a rust which had been defoliating a frangipanni tree owned by David Fairchild at Coconut Grove, Florida, was received from Knowles A. Ryerson, in February. The rust was determined by R. Davidson of the Office of Mycology and

Disease Survey as Coleosporium domingense (Berk.) Arth. This seems to be the first record of the occurrence of the rust in this country.

SPECIMENS RECEIVED

FRUIT CROPS:

Caconema radicicola (Greef) Cobb on strawberry. Ames, Iowa. Coll. H. Hess, March 26. Det. N. A. Cobb.

Gymnoconia interstitialis (Schl.) Lagh. on blackberry. Washington, D. C. Coll. C. A. Ludwig, April 30. Det. R. J. Haskell.

VEGETABLE CROPS:

Ascochyta lycopersici Brun. Stem and leaf blight of tomato. Atlee, Virginia, March 29. Det. C. Drechsler.

Mycosphaerella brassicicola (Fr.) Lindau, ring spot of cauliflower. Albany, New York. Coll. E. R. Niehaus, March 29. Det. L. L. Harter.

Peronospora parasitica (Pers.) D By. on cabbage. Thomasville, Georgia. Coll. O. C. Boyd, Jan. 15. Det. L. L. Harter.

Bacterium campestre (Pam.) EFS., black rot of cabbage. La Fayette, Louisiana. Received from Bacque Seed Co., Inc., Jan. 29. Det. L. L. Harter.

Rhizoctonia sp., root rot of Lima bean. Stuart, Florida, received from T. Lane Moore, Jan. 28. Det. W. A. Whitney.

FORAGE CROPS:

Peronospora trifoliorum D By. on alfalfa. Reidsville, North Carolina, received from G. W. Fant, April 18.

Non-parasitic trouble of alsike clover. New Hampton, Virginia. Collected April 22 by T. W. Turner who reported that the disease was serious in clover this spring. Doctor Monteith says that the trouble is similar to white spot of alfalfa, probably due to various causes, including potash deficiency, excessive water, etc.

ORNAMENTALS AND MISCELLANEOUS:

Aster yellows (virus), Doylestown, Wisconsin. Received from Chas. A. Nagel, March 8. Det. F. Weiss.

Diaporthe unbrina Jenkins on rose (Red Radiance), near Great Bridge, Virginia, F. P. McWhorter, March 12. Det. G. Hamilton Martin.

Leptosphaeria coniothyrium (Fckl.) Sacc. on rose. Winchester, Virginia, F. J. Schneiderhan, March 23. Near Great Bridge, Virginia, on Red Radiance variety, F. P. McWhorter, March 12. Both det. G. Hamilton Martin.

Dothiorella ribis, pycnidial form of Botryosphaeria ribis, causing cankers on twigs of pussy willow. Charlotte, North Carolina, R. F. Poole, May 7, Det. C. L. Shear.

Poria ambigua Bres. (P. lacerata Murr.) Root rot of hackberry, near Sub-Station No. 5, Texas Agricultural Experiment Station, B. F. Dana, April 24. On sheath at base of leaf of date palm, Sacaton, Arizona. Coll. R. H. Peebles, March 27, received from D. C. George, who stated that the organism had been observed and collected in various parts of the Salt River Valley, apparently saprophytic. Both specimens det. J. A. Stevenson.

Uromyces caladii (Schw.) Farl. II, on Arisaema triphyllum. Cabin John Creek, Maryland. Coll. Mary G. Van Meter, April 28. Det. R. Davidson.

Puccinia violae (Schum.) DC. on Viola sp. Cabin John Creek, Maryland. Coll. Mary G. Van Meter, April 28. Det. R. Davidson.

Peronospora parasitica (Pers.) D By., on Dentaria laciniata. Cabin John Creek, Maryland. Coll. Mary G. Van Meter, April 28. Det. R. Davidson.

Peronospora arthuri Farlow on Oenothera sp. American University Campus, Washington, D. C. Coll. C. A. Ludwig, April 30. Det. R. J. Haskell.

NOTICE

Announcement is being made that the American Phytopathological Society will hold its regular summer meeting at the same time and place as selected by its Southern Division for its regular annual meeting. This will be in North Carolina starting at Raleigh, and the date has been tentatively set for July 29, 30, and 31. R. F. Poole, President of the Southern Division, is in charge of arrangements. Science and Phytopathology will carry more detailed announcements.

R. J. H.